In the Claims:

Claims 1-24 (Cancelled).

25. (Original) A method for processing an incident pulsed signal of an ultra wide band type received over a channel by a data device operating in a wireless data communications system, the incident pulsed signal carrying information within a super-frame structure, each super-frame structure comprising a plurality of frames respectively allocated for communications between specific pairs of data devices operating in the wireless data communications system and a header including at least one first training sequence, each frame comprising a preamble including at least one second training sequence, the method comprising:

upon reception of each super-frame structure by a data device, performing coarse synchronization with another data device acting as a coordinator device for the wireless data communications system, the coarse synchronization using the first training sequence; and

upon reception of each frame allocated to the data device operating within the super-frame structure, performing channel estimation using the second training sequence, the channel estimation being based on at least one signal slice having ends temporally defined with respect to a result of the coarse synchronization, the channel estimation also performing a frame synchronization.

26. (Original) A method according to Claim 25, wherein the channel has a predetermined maximum length; wherein the header further includes a time of arrival indication for each frame; wherein the coarse synchronization delivers a first delay information corresponding to a delay associated with the received incident pulsed signal; and wherein the channel estimation begins on a signal slice starting at an instant equal to the time of arrival of the frame increased by a difference between the first delay information and a predetermined offset, the signal slice having a size equal to a maximum channel length increased by the predetermined offset.

27. (Original) A method according to Claim 26, wherein the channel comprises a multipath channel; and wherein the predetermined offset comprises a first offset taking into account that the first delay information is associated with a different path of the channel.

28. (Original) A method according to Claim 27, wherein the first offset is equal to about 10 ns.

29. (Original) A method according to Claim 27, wherein the predetermined offset comprises a second offset taking into account differences between propagation delays between the coordinator device and an data device, and between a pair of data devices.

30. (Original) A method according to Claim 29, wherein the second offset depends on a maximum distance between two data

devices.

31. (Original) A method according to Claim 29, wherein the second offset is equal to about 30 ns.

32. (Original) A method according to Claim 29, wherein the predetermined offset is a sum of the first and second offsets.

33. (Original) A method according to Claim 25, wherein the first training sequence is identical to the second training sequence.

34. (Original) A method according to Claims 25, wherein at least one of performing the coarse synchronization and the channel estimation comprises performing a digital correlation.

35. (Original) A method according to Claim 34, wherein the second training sequence is a dedicated pulse train having a pulse repetition period; and wherein the digital correlation performed during the channel estimation comprises coherent integration of successive signal slices having a same size and being mutually temporally shifted with the pulse repetition period.

36. (Original) A method according to Claim 25, wherein the wireless data communication system comprises a wireless personal area network of the piconet type.

37. (Original) A data device of a wireless data communications system comprising:

a receiver for receiving an incident pulsed signal of an ultra wide band type over a channel, the incident pulsed signal carrying information within a super-frame structure, each super-frame structure comprising a plurality of frames respectively allocated to communications between specific pairs of data devices operating in the wireless data communications system and a header including at least one first training sequence, each frame comprising a preamble including at least one second training sequence; and

a processor connected to said receiver and comprising

a coarse synchronizer for performing, upon reception of each super-frame structure, a coarse synchronization with another data device acting as a coordinator device of the wireless data communications system, said coarse synchronizer using the first training sequence, and

a channel estimator for performing, upon reception of each frame allocated to the data device within the super-frame structure, channel estimation using the second training sequence, the channel estimation being based on at least one signal slice having ends temporally defined with respect to a result of the coarse synchronization, said channel estimator also performing a frame synchronization.

38. (Original) An data according to Claim 37, wherein the channel has a predetermined maximum length; wherein the header further includes a time of arrival indication for each frame; wherein said coarse synchronizer delivers a first delay information corresponding to a delay associated with the received incident pulsed signal; and wherein said channel estimator begins the channel estimation on a signal slice starting at an instant equal to the time of arrival of the frame increased by a difference between the first delay information and a predetermined offset, the signal slice having a size equal to a maximum channel length increased by the predetermined offset.

39. (Original) A data according to Claim 38, wherein the channel comprises a multipath channel; and wherein the predetermined offset comprises a first offset taking into account that the first delay information is associated with a different path of the channel.

40. (Original) A data according to Claim 39, wherein the first offset is equal to about 10 ns.

41. (Original) A data device according to Claim 39, wherein the predetermined offset comprises a second offset taking into account differences between propagation delays between the coordinator device and a data device, and between a pair of data devices.

42. (Original) A data device according to Claim 41, wherein said second offset depends on a maximum distance between two data devices.

43. (Original) A data device according to Claim 41, wherein the second offset is equal to about 30 ns.

44. (Original) A data device according to Claim 41, wherein the predetermined offset is a sum of the first and second offsets.

45. (Original) A data device according to Claim 37, wherein the first training sequence is identical to the second training sequence.

46. (Original) A data device according to Claim 37, wherein at least one of said coarse synchronizer and said channel estimator comprise a digital correlator.

47. (Original) A data device according to Claim 46, wherein the second training sequence is a dedicated pulse train having a pulse repetition period; and wherein said digital correlator comprises a coherent integrator for performing during the channel estimation a coherent integration of successive signal slices having a same size and being mutually temporally shifted with the pulse repetition period.

48. (Original) A data device according to Claim 37, wherein the wireless data communication system comprises a wireless personal area network of the piconet type.

49. (Original) A wireless data communications system comprising:

a plurality of data devices, each data device comprising

a receiver for receiving an incident pulsed signal of an ultra wide band type over a channel, the incident pulsed signal carrying information within a super-frame structure, each super-frame structure comprising a plurality of frames respectively allocated to communications between specific pairs of data devices operating in the wireless data communications system and a header including at least one first training sequence, each frame comprising a preamble including at least one second training sequence, and

a processor connected to said receiver and comprising

a coarse synchronizer for performing, upon reception of each super-frame structure, a coarse synchronization with another data device acting as a coordinator device of the wireless data communications system, said coarse synchronizer using the first training sequence, and

a channel estimator for performing, upon reception of each frame allocated to the data device within the super-frame structure, channel estimation using the second training sequence, the channel

estimation being based on at least one signal slice having ends temporally defined with respect to a result of the coarse synchronization, said channel estimator also performing a frame synchronization.

50. (Original) A wireless data communications system according to Claim 49, wherein the channel has a predetermined maximum length; wherein the header further includes a time of arrival indication for each frame; wherein said coarse synchronizer delivers a first delay information corresponding to a delay associated with the received incident pulsed signal; and wherein said channel estimator begins the channel estimation on a signal slice starting at an instant equal to the time of arrival of the frame increased by a difference between the first delay information and a predetermined offset, the signal slice having a size equal to a maximum channel length increased by the predetermined offset.

51. (Original) A wireless data communications system according to Claim 50, wherein the channel comprises a multipath channel; and wherein the predetermined offset comprises a first offset taking into account that the first delay information is associated with a different path of the channel.

52. (Original) A wireless data communications system according to Claim 51, wherein the first offset is equal to about 10 ns.

53. (Original) A wireless data communications system according to Claim 51, wherein the predetermined offset comprises a second offset taking into account differences between propagation delays between the coordinator device and a data device, and between a pair of data devices.

54. (Original) A wireless data communications system according to Claim 53, wherein said second offset depends on the maximum distance between two data devices.

55. (Original) A wireless data communications system according to Claim 53, wherein the second offset is equal to about 30 ns.

56. (Original) A wireless data communications system according to Claim 53, wherein the predetermined offset is a sum of the first and second offsets.

57. (Original) A wireless data communications system according to Claim 49, wherein the first training sequence is identical to the second training sequence.

58. (Original) A wireless data communications system according to Claim 49, wherein at least one of said coarse synchronizer and said channel estimator comprises a digital correlator.

59. (Original) A wireless data communications system according to Claim 58, wherein the second training sequence is a dedicated pulse train having a pulse repetition period; and wherein said digital correlator comprises a coherent integrator for performing during the channel estimation a coherent integration of successive signal slices having a same size and being mutually temporally shifted with the pulse repetition period.

60. (Original) A wireless data communications system according to Claim 49, wherein the wireless data communication system comprises a wireless personal area network of the piconet type.